DRY ETCHING AND MIRROR DEPOSITION PROCESSES FOR SILICONE ELASTOMER

Abstract of the Disclosure

According to the invention semiconductor processing procedures can be applied to silicone elastomeric materials. The surface tension of the elastomeric material is changed by depositing a thin layer of silicon, silicon nitride, silicon dioxide or a combination thereof onto the elastomer's exposed surface. In the illustrated embodiment it is shown that it is possible to deposit a thin layer of silicon dioxide onto the elastomer's exposed surface through re*active sputter deposition of silicon dioxide within an argon-oxygen plasma. In another plasma fabrication procedure, the elastomer material is directionally etched using a standard RF plasma etching system and a dry chemical oxygen-Freon removal procedure, which procedure volatilizes all of the components of the polydimethylsilicone (PDMS) or GE's RTV elastomer material.